

What we claim is:

1. A method of forming a dielectric layer on a silicon-containing structure, said method comprising the steps of:
 - 1 providing a nitrogen-containing gas;
 - 2 heating said silicon-containing structure to an elevated temperature which is greater than 700C; and
 - 3 striking a plasma above said silicon-containing structure, wherein combination of said nitrogen-containing gas, said elevated temperature, and said plasma resulting in the thermal nitridation of a portion of said silicon-containing structure.
2. The method of claim 1, wherein said elevated temperature is greater than 900C.
3. The method of claim 1, wherein said elevated temperature is greater than 1000C.
4. The method of claim 1, wherein said silicon-containing structure is a silicon substrate.
5. The method of claim 1, wherein said silicon-containing structure is a bottom electrode of a storage capacitor of a memory device.
6. The method of claim 1, wherein said nitrogen-containing gas is pure N₂.

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7. A method of forming an electrical device which has a dielectric formed between a bottom structure and a top structure, said method comprising the steps of:

providing said bottom structure;

providing a nitrogen-containing gas over said bottom structure;

heating said bottom structure at an ambient temperature which is at least 900C;

providing a plasma over said bottom structure to cause thermal nitridation of said bottom structure so as to form said dielectric over said bottom structure; and

providing said top structure over said dielectric.

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8. The method of claim 7, wherein said bottom structure is a silicon substrate and said top structure is a gate structure;

9. The method of claim 7, wherein said bottom structure is a bottom electrode of a storage capacitor of a memory device.

10. The method of claim 7, wherein said ambient temperature is around 1000C.

11. The method of claim 7, wherein said nitrogen-containing gas is N₂.

12. The method of claim 7, wherein said nitrogen-containing gas is comprised of a combination of N₂ and O₂.